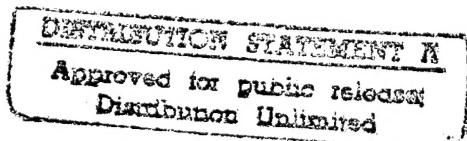## NAVAL WAR COLLEGE
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FUTURE WARFARE AND THE VIABILITY OF COMMAND BY NEGATION

by

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

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Abstract of

FUTURE WARFARE AND THE VIABILITY OF COMMAND BY NEGATION

Military command systems predominantly take on the characteristics of one of two types of command and control. One seeks unity of effort in military operations through centralized decision-making and overt direction of forces--command by detail. The other seeks unity of effort through participative decision-making and commitment of subordinates to overall objectives--command by negation. Each type manages the disorder of warfare, and its inherent uncertainties, in different ways. Command by detail emphasizes top-down control and planning during tactical execution. Command by negation emphasizes leadership and subordinate initiative. Elements of both styles will be needed to match the demands of future warfare. Unfortunately, a breathtaking pace of technological change in tandem with an ever more political strategic environment is blurring conceptual distinctions between 'command' and 'control'. Specifically, The Joint Chiefs' vision for the future, as indicated in their joint task force structure and "C4I for the Warrior" initiative, are clearly laying the groundwork for an extremely centralized military command system. The purpose of this paper is to explore the realities of present trends in command and control and to discuss, from an operational commander's perspective, whether command by negation is a viable, or even necessary, option for the future.

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INTRODUCTION

Command is not a prerogative, but rather a responsibility to be shared with all who are capable of filling up the spaces in orders and of carrying out that which is not openly expressed though it may be understood.
                                                          BGEN S. L. A. Marshall[1]

Warfare of the future will reflect the military technological revolution currently in our midst. The future battlefield will be violent and chaotic. There will be no battle lines on which one force confronts another. Weapons will unleash lethality with amazing precision. Troops on the ground, at sea and in the air will be exceedingly mobile and dispersed.[2] The sophistication of forces will raise the complexity of operations to uncontemplated extremes, vastly increasing uncertainty and the potential for disorder. Operational commanders, therefore, will be challenged to articulate a delicate balance between the art of 'command' and the science of 'control'.

Control is critical to the synchronization of forces in time and space--sometimes on a moment's notice. Extensive connectivity with all points in the theater and access to real time critical information will facilitate such control. Command provides the motivation and initiative required of subordinates to take appropriate actions in the face of a harsh and rapidly changing battlefield. Leadership and participative decision-making will facilitate command by fostering the positive climate required for maintaining force unity of effort against possibly significant opposition.

The total 'command system' requires both command and control. As in the past, however, command and control (C2) structures of the future will invariably favor either one or the other characteristic. One system might favor centralized control of resources and unilateral,

igh level decision-making authority for tactical execution--or colloquially, command by detail. Another might tend to promote distributed management of resources and decentralized authority for tactical execution--command by negation. If the trend today in the United States Armed Services continues, command by negation at the operational level of war will not survive the post-industrial era. The realities of joint warfare, the military technological revolution, and the general nature of most service cultures all appear unlikely to cause a reversal, despite clear indications that the future battlefield may produce marked increases in both disorder and uncertainty.

COMMAND AND CONTROL IN JOINT DOCTRINE

Men engaged in combat require motivation as well as coordination. There is a contradiction between the two functions.
Martin van Creveld[3]

In today's practice the term 'command' is often mistaken for what is actually 'control'. In fact, control in the military sense applies to the establishment of operational limits, focused effort and organizational structure. Command, on the other hand, enables leaders to impart their vision to subordinates, fix responsibilities and empower subordinates with freedom of action.[4] The two functions put together should form a balanced process--a command system--in which an operational commander plans, directs, coordinates and controls forces; all for the purpose of minimizing uncertainty and striving for unity of effort. Over the course of history two principle types of command systems have evolved, those exercising either detailed control or directive control.

Detailed Control

Detailed control--command by detail--is the top-down approach to command and

control. Such systems seek unity of effort and management of disorder in one of or a combination of two ways: through extensive operational planning (war by timetables), or through direct tactical control from strategic or operational leaders. Typically, orders are issued by an extremely rigid decision-making hierarchy in which subordinates are told not only the mission, but also the specific details on how to proceed. Leaders do tend to make more informed decisions, synchronize forces more effectively, and achieve better economies of scale. The down side, however, is a tendency to discount the importance of fog and friction in war, the likelihood of information overload at high command that even normally large staffs cannot digest, and a tendency to breed lack of initiative in subordinates. Known as *befehlstaktiks*--or, 'orders tactics'--in German, detailed control was the system of preference for sovereigns and senior military leaders from the time of Alexander to the end of the Eighteenth Century.[5] More recent examples include the Schlieffen Plan of World War One and U.S. NCA[*] control of air campaigns in Vietnam.

Directive Control

Directive control--command by negation--is the participative approach to command and control. Philosophically, operational unity of effort is gained by building team cohesion through leadership, commitment and distributed tactical authority. Disorder and uncertainty are managed at all levels in the chain of command through flexibility for on-the-spot initiative. Operational commanders will typically issue orders which describe the overall mission concept (vision), specific objectives, and a general sequence of impending tasks. Subordinate commanders, however, have responsibility for determining tactical methodology (decentralized execution). Characteristic advantages of directive control are quicker, more flexible decision-

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[*] 'NCA' stands for National Command Authorities.

making, smaller staffing, and innovative thinking. Negatives include a tendency for lack of uniformity, duplication of some efforts, and localization of expertise. Coined, again by the Germans, as *auftragstaktiks*--or, 'mission tactics'--the system found its greatest success when employed by the German Wermacht to execute Hitler's *blitzkrieg* in World War Two.[6] The decentralized authority given the Navy's various warfare area commanders through the Combined Warfare Commander (CWC) concept is the closest example of command by negation in recent years.[7]

The Joint Force Approach to Command and Control

> *Unity of effort, centralized planning, and decentralized execution are key considerations {for organizing forces}. JFC's[†] may elect to centralize selected functions within the joint force, but should strive to avoid reducing the versatility, responsiveness, and the initiative of subordinate forces.*
> *Joint Pub 3-0*[8]

The 'unity of effort, centralized planning, decentralized execution' paradigm is the present basis for joint doctrine on command and control, combining aspects of both detailed and directive control. The doctrine, and the joint force structure it adopts, is rooted in a 'systems theory' approach to military command of diverse resources on a large scale. According to the theory, the best way for organizations to maximize effectiveness (achieve unity of effort) in a complex environment is through mission orientation, lean staffing, initiative, and decision-making at the lowest possible level. To support this type of C2 framework, however, senior executives must *lead* the total system. The requisite leadership tasks entail establishing vision, designing structural interdependencies, establishing supporting information systems, and creating positive climate.[9] To make a comparison, joint doctrine specifies that a commander of a joint task force (JTF) will establish vision by issuing

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[†] 'JFC' stands for Joint Force Commander.

commander's intentions, campaign plans and courses of action. He will build interdependencies by designing a command structure of reciprocally supportive, interoperable subsets such as functional or service component commands.[10] Supporting information systems will already be available through access to both the new Global Command and Control System (GCCS) and individual service C4I[‡] hardware.

Joint doctrine, however, does not directly address the subject of building command climate. The reasons are twofold. First, although positive climate underpins motivation and commitment to unity of effort, building such climate takes time. Joint task forces, however, are frequently established in response to a crisis, though a few standing JTF's do exist. The quickest way for a JFC to achieve synchronization of unfamiliar, non-integrated forces is to design a tightly controlled, centralized command structure. In other words, when lack of time precludes adequate training, planning or other coordination of forces; attaining short-term control will always get the priority over building commitment through positive climate. Second, truly positive climate demands both leadership of and adherence to a command system which supports goal-orientation, open communications, and participative decision-making--the systems model.[11] A JFC can promote these principles in several ways: by using the Universal Joint Task List and the Joint Strategic Capabilities Plan to determine component level tasks and missions, by issuing simplified operational plans to push decision-making authority down the chain for tactical mission execution, and by enforcing the use of liaison officers among sub-components to build synergy. Unfortunately, C2 requirements and force mixes from one joint force scenario to another can vary so greatly that institutionalization of such methods will be difficult at best. The likelihood for the future, therefore, is that a JFC will find the centralized

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[‡] 'C4I' stands for Command, Control, Communications, Computers, and Intelligence.

nature of the JTF structure, the increasing complexity of modern forces and the strategic environment he must operate in as all very suited to top-down control, vice command by negation. GCCS will certainly facilitate that control.[12] Though the Joint Chiefs (JCS) are on the right theoretical track with a systems approach to command and control, theory and reality will part ways on the future battlefield.

THE NATURE OF FUTURE WARFARE

The United States is experiencing a revolution in military affairs brought on by a sudden explosion of technological developments which hit full stride about fifteen years ago. Those developments have affected everything from the speed, precision and depth of warfare to the connectivity of all participants both across and well to the rear of the battlefield. As advances continue, therefore, operational commanders will have to adjust their C2 processes to changes occurring in the nature of war at all three levels of warfare.

The Strategic Context

In the future both the national leadership and the nation at large will subject operational commanders to increasing limitations, expectations and even direct influence--all in the name of politics. For example, tight federal budgets of the 1990's have caused progressive reductions in service force structures. The military establishment has responded by trying to maintain the same warfighting capabilities through acquisition of high technology assets, invariably pushing up the value of the force procured as well as the cost of cyclical or combat-induced equipment replacements. The relative cost of using those forces, therefore, has become a much more politically sensitive issue for budget-conscious legislators, thereby adding pressure to military commanders imbued with responsibility to preserve assets.

The nature of the external threat has also changed. Our National Security Strategy now forecasts that future threats to U.S. interests will be regionally oriented.[13] Certainly, recent events seem to confirm this view. Ethnic conflicts, interstate rivalries and rogue aggression have been occupying the attention of military planners since the end of the Cold War. From operations other than war (OOTW) to full scale conflict, American forces have deployed to such places as Haiti, Somalia, Bosnia, and the Persian Gulf to name just a few. All were high visibility events in which U.S. credibility was tested in full view of an anxious civilian leadership and 'tuned in' American public. Though joint task force commanders had a great deal of decision-making authority in these cases, even as heads of multi-national coalitions, the intense scrutiny placed on each force deployment had an understated impact on command and control. The pervasive connectivity of the battlefield with national command centers and living rooms alike via extensive, real time media coverage (the 'CNN factor') tended to promote a 'zero-defect' mentality among warfighters. In other words, the political ramifications of failure vastly increased due to the rapid expansion of global communications networks.[14] The trend can only get worse in the future as the convergence of high profile factors in the strategic environment will make the use of force in any situation an exceedingly political endeavor. Accordingly, operational level commanders will be extremely disinclined to push responsibility downward, if in fact the NCA can even do it. Though General Swarzkopf had a great deal of flexibility in an exceptionally politicized Gulf War, he also had one of the most cooperative enemies in all of American history. Should the time come in the future when U.S. forces suffer serious setbacks on the battlefield, the distinction between the strategic and tactical levels of command are likely to become very blurred. Politics, therefore, is blending ever greater control into the nature of warfare.

Operational Control and Tactical Capability

At the operational level, a commander has a large responsibility. He must not only perform his tasks in full view of his countrymen, he must ultimately develop a course of action to facilitate achievement of national objectives in exceedingly diverse scenarios. When true offensive operations are required, the American way is to hurl extensively synchronized, highly maneuverable and overwhelmingly lethal forces at the enemy's center of gravity as rapidly as possible.[15] To do so in today's world necessarily requires a great deal more battlefield awareness than just twenty years ago. Tomorrow it will require complete information dominance of the theater. The side with the quicker decision cycle will be able to establish the pace of engagements and keep the enemy on the defensive. Accordingly, the JCS are striving to place operational commanders at the center of a global information grid--the 'info sphere'-- which will fuse tactical, operational and strategic data into a "real time, true picture of the battlespace."[16] The initiative is known as the "C4I for Warrior" concept. Its supporting system, GCCS, will not only solve many of the interoperability problems among service "stovepipe" C4I systems, it will also provide critical information to a joint force commander on demand through connectivity with all points of the battlefield and access to space-based resources.[17] The down side is that because GCCS will be focused to support one individual, the connectivity will accentuate increased span of control, centralization of authority, and a tendency to fight wars from a 'green screen'. In addition, the system will foster a sense of dependency on data supplied by a susceptible electromagnetic spectrum that could either overwhelm staffs with information flow or leave whole forces blind if compromised. Nevertheless, the intent of the JCS for the future is clear. The evolving capabilities and sophistication of forces will demand ever greater amounts of control.

In the future, the battlefield will be greatly affected by technology advances: high speed computer nets, secure communications, mass storage and data transmittal devices, sensor technology, and all battlefield elements coupled to intelligence and targeting systems.[18] With more precise weaponry, fewer weapons systems will be required to achieve the same lethality. Already under development is a satellite downlink capability called Asynchronous Transfer Mode (ATM) which will provide incredible amounts of intelligence imagery, positional data and video on demand.[19] Precision targeting will, therefore, be available directly to shooters on land, in the air or at sea. Already today, one F-117 with one bomb can do what it took 4500 B-17 sorties in World War Two or even 95 B-52 sorties to accomplish in Vietnam.[20] Less required fire power means less combatants. In fact, with the rapid development of unmanned air vehicle (UAV) technology, remote operators will soon put weapons on target without any direct combat. Fewer combatants will mean greater dispersal of forces. Greater dispersal of forces will require more overall control to guarantee unity of effort.

Sophistication of both personnel and equipment is also dramatically on the rise. Sophistication is breeding more specialization among units. More specialization means a greater number of mission areas and an increase in battlefield functions. In the Army alone the number of warfare functions has expanded from 20 to 30 just since World War Two.[21] Extensive numbers of platforms, performing a wide array of missions and functions is naturally producing a need for more centralized control. Coupled with more dispersed and costly forces in a markedly political strategic environment, the trend of command and control for the future appears well established.

SERVICE PERSPECTIVES ON COMMAND AND CONTROL

What the Warrior needs: a fused, real time, true representation of the

*battlespace--an ability to order, respond and coordinate horizontally and
vertically to the degree necessary to prosecute his mission in that battlespace.*

'C4I for the Warrior' Vision Statement[22]

The "C4I for the Warrior" initiative is proving to be a powerful vehicle of change for typically conservative U.S. military services. Implicit in the vision statement is the need for full interoperability among their different C4I systems in order to tie in with GCCS. Each, therefore, has identified C4I development strategies for the future which also reflect the approach of varying service cultures to command and control in the future.

Army

For decades the Army operated in a highly formalized, tightly structured, closed environment. Risk-aversive seniors built compliance into orders and minimized individual thinking, all in order to promote predictability.[23] After Vietnam, the Army revived the *auftragstaktik* concept both in rebuttal to the war's lessons learned and out of awareness that technological advances were likely to increase the distribution of forces on the battlefield. Greater dispersion seemed to indicate a potential for greater disorder and uncertainty. Accordingly, AirLand Battle Doctrine of the 1980's aimed to push management of that uncertainty back down to the levels best equipped to handle it.[24] Today, however, the Force XXI concept, the latest FM 100-5 update, and 'Enterprise'--the Army's new C4I strategy; are all reversing the emphasis of a decade ago. 'Enterprise' intends not only to link commanders directly with individual warfighters, but to provide him with mobile access to the 'info sphere' from any point in the area of operations.[25] Situational awareness should undoubtedly improve. Unfortunately, the demand for information will also increase to such a degree that, as Martin van Creveld points out, the size and complexity of the 'central directing organ' will also

expand.[26] In other words, the new systems will invariably enable commanders greater capacity to direct their forces, while also creating the tendency to do so on scene. Though this may elicit the responsiveness required for synchronization of forces real time, it is unlikely to inspire initiative in subordinates even if they possess some decision-making authority. For the Army, the emphasis for the future is clearly on managing uncertainty by building in greater control.

Air Force

Operationally, the Air Force is and always has been a highly centralized, platform-oriented culture. The culture has been bred out of necessity in having to manage large numbers of costly warfighting assets, the use of which often equated to strategic consequences. Accordingly, Air Force policy currently focuses on curbing uncertainty through a management style of command rather than on one of influence and subordinate decision-making.[27] Aviators are subjected to strict controls through multitudes of checklists and procedural policies. Typical operations are usually planned to the last detail with little flexibility for non-standard actions. No better example exists than in the complexity of the Air Tasking Order format.[§]

Today, the service strategy of "Global Reach--Global Power" and its "C4I Systems Master Plan" have the noble goal of providing combat aircrews with "fused, near-real time information depicting the battlespace from multimedia, global networks accessed on demand".[28] Nevertheless, the fundamental purpose is to keep the focus of authority and information flow firmly encamped at the operational and strategic levels of warfare. Decentralized execution for the Air Force is anathema out of necessity, and the new C4I initiatives are not going to change that attitude.

Navy

[§] Comments derived from personal experience.

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Like the Air Force, the Navy has long been a platform-oriented service, but with an entirely different approach to command and control. Because naval units have historically operated in widely dispersed locations and, in earlier days, many times out of range of controlling authorities, the service has been and still is predisposed to a mindset of operating independently with a great deal of unit flexibility. In recent years, naval 'operations' have been viewed as the prerogative of an Officer in Tactical Command (OTC) whose subordinate, and very separate, warfare area commanders had responsibility for execution of the various tactical missions (CWC concept).[29] As a result, the whole idea of operational jointness has been difficult for naval leaders to grasp. It not only requires the Navy to unify its own internal warfighting efforts, but also mandates the kind of all-service interoperability the Navy has long resisted. Two initiatives are facilitating these changes. First, the "Forward from the Sea" vision, which shifts the focus of naval efforts from blue water to littoral operations, is forcing the service to learn power projection ashore in tandem with Marines, the Army and even the Air Force. Second, the Navy's C4I strategy--'Copernicus'--will finally bind all the internal warfighting communications systems together. Because Copernicus also aims to place the naval commander at the "center of the universe" by linking him with the 'info sphere', the long term effects on the Navy's command and control culture is not clear at this time.[30] Like the other services, too much information on demand may overwhelm the battlegroup commander's staff, keeping the CWC concept alive and kicking. Most likely, however, the Navy's own push to integrate with other services in projecting power ashore will inevitably cause the old preference for decentralized execution to wither on the vine. The extreme complexities of deconflicting land, sea and air forces in littoral regions will simply require a great deal more of centralized planning and control.

Marines

Of the four major services, the Marine Corps is the only one clearly reliant on managing uncertainty in war through command by negation. Because the very nature of its warfighting posture is based on rapid reaction small-unit operations, Marine forces are usually well forward and dispersed, but self-contained. Positive control from on high, therefore, is neither very practical nor desired. As a result, Marine Corps doctrine aims to "prescribe the general flow of events rather than to try to control each event".[31] To do so, a culture of flexibility and responsiveness has been institutionalized from top to bottom both by the adaptive structuring of Marine Air Ground Task Forces (MAGTF) as situations dictate and by inculcating leaders with the *responsibility* for decisive actions in battle from a young age.[32]

In the C4I arena, the Corps is 'piggy-backing' off of the Navy's 'Copernicus' program since the naval expeditionary strategy for projecting power ashore demands full interoperability between the two. Although Marines have some of the same objectives as their Navy counterparts, troops need rugged, mobile systems for access to space-based capabilities to synchronize efforts in what are now barely distinguishable close, deep and rear actions.[33] While true that receipt of the new connectivity will facilitate greater control from senior commanders as in the Army's case, the Corps emphasis is still clearly on sustaining the initiative of the small unit leaders. Decentralized execution is a Marine way of life too deeply ingrained to disappear any time soon.

CONCLUSIONS

Leadership is of the spirit, compounded of personality and vision. Its practice is an art. Management is of the mind, more a matter of accurate calculations, statistics, methods, timetables, and routine. Its practice is a science. Managers are necessary, but leaders are essential.

Military officers selected for operational level command assignments have tough choices to make on how they should coordinate forces and other assets to achieve objectives in crises involving military action. Deciding what balance to strike between the need for command and the desire for control is perhaps the most important choice of all. For leaders in today's Department of Defense, the distinction between the two is becoming ever so narrow in reality, even if not so much so in theory. In their bid to institutionalize the concept of 'jointness' among the services, the Joint Chiefs are aiming to institutionalize the 'centralized planning and decentralized execution' paradigm. Unfortunately, JCS efforts are being countered by a flood tide of environmental changes, by technological developments, and from internal conservatism, all of which place a great deal more emphasis on control as the best means to achieve success.

Externally, the evolving American fiscal landscape, the realities of regional warfare and global communications networks are increasing the role of politics in military affairs, blurring the distinction between the strategic and tactical levels of command.

Internally, the long-standing cultures of the four major services for the most part either naturally were or are gradually becoming more resistant to the idea of participative decision-making at subordinate levels. The main reason, again, is the explosive impact of technological change both on connectivity as well as on the speed, range and lethality of forces. These changes, in combination with extensive increases in sophistication of equipment, specialization of personnel and diversity of missions; have created the potential for extreme disorder and uncertainty in military operations. Joint doctrine aims to counter with heavy reliance on

information flow provided by space-based capabilities to a central location--a joint force or operational commander. All the services, however, intend to also hook up commanders directly with individual combatants, fomenting a natural tendency for seniors to fight wars well to the rear, from a 'green screen' and with a greater amount of overt direction. The result may be mass confusion on the battlefield. Only the Marines seem likely to resist such a tendency in the near term.

Regardless of the nature of changes currently affecting the U.S. military establishment, one thing is certain--the need for leadership is alive and well. The evolving nature of jointness demands it, and the development of initiative and commitment in subordinates demands it. In other words, as long as humans take charge of other humans in warfare, leadership will be necessary.

As Clausewitz opined, war is ultimately a clash of moral forces--between governments, peoples, and military forces.[35] At the operational level of war, unity of effort is the cumulative effect of massed human willpower (moral forces) in concert with the synchronization of available resources toward one goal. Control establishes the necessary physical synchronization. Emotional commitment compels the action to higher results. Commitment is begotten by a climate of credible leadership, open communications and participative decision-making at all levels--the essence of decentralized command. Still, decentralized command and control cannot happen automatically. It has to be institutionalized through dedicated policy and constant reinforcement from senior levels, through allocation of resources, through dedicated training, and most importantly, through *leadership* from the top down.[36] For the U.S. military, it will continue to be an uphill battle.

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